

Use Pythagorean Theorem to solve.

1.) $a = 4, b = ?, c = 8$

$$4^2 + b^2 = 8^2 \quad b = \sqrt{48}$$

$$b \approx 6.9$$

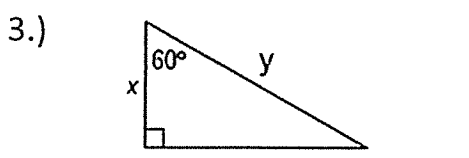
2.) Do the lengths 7, 24, 25 make a right triangle?

$$7^2 + 24^2 = 25^2$$

$$49 + 576 = 625$$

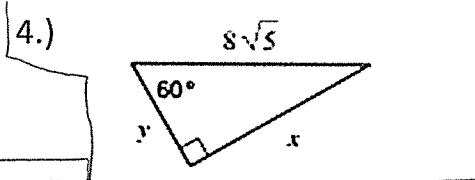
$$625 = 625 \text{ YES!}$$

Find the unknown sides lengths.

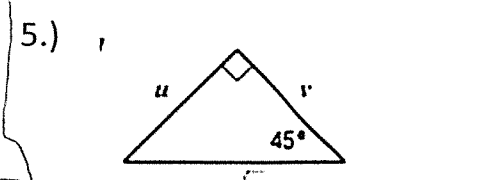


$$x = \frac{8 \cdot \sqrt{3}}{\sqrt{3} \cdot \sqrt{3}} = \frac{8\sqrt{3}}{3}$$

$$y = \left(\frac{8\sqrt{3}}{3}\right) \cdot \frac{2}{1} = \frac{16\sqrt{3}}{3}$$



$$y = 4\sqrt{5}, \quad x = 4\sqrt{5}$$



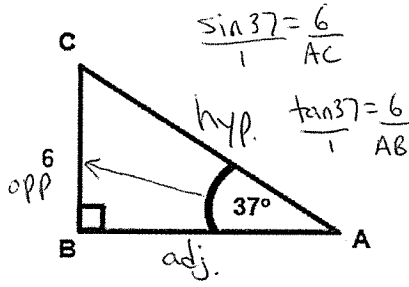
$$u = \frac{8\sqrt{2}}{\sqrt{2}} = 8, \quad v = 8$$

Use SohCahToa to solve.

4.) $AC \approx 10$

5.) $AB \approx 8$

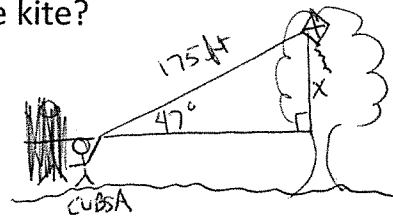
6.) $m\angle C = 53^\circ$



Create your own.

7.)

8.) Cubsa ReGood is flying his kite at the park. The kite has taken out 175 ft of string. The angle of elevation to the kite is 47° . Cubsa is holding the kite string even with the top of his head. How high above Cubsa's head is the kite?



$$\frac{\sin 47}{1} = \frac{x}{175}$$

$$x \approx 128 \text{ ft}$$

Simplify each radical expression.

9.) $\sqrt{5}(\sqrt{10} + 3\sqrt{5})$

$$\sqrt{50} + 3\sqrt{25}$$

$$\sqrt{25} \cdot \sqrt{2} + 3 \cdot 5$$

$$5\sqrt{2} + 15$$

10.) $-\sqrt{27}(\sqrt{25} - \sqrt{9})$

$$-\sqrt{9} \cdot \sqrt{3} (5 - 3)$$

$$-3\sqrt{3} (2)$$

$$-6\sqrt{3}$$

11.) $\frac{\sqrt{27} - \sqrt{49}}{\sqrt{3}} = \frac{(3\sqrt{3} - 7)\sqrt{3}}{\sqrt{3} \cdot \sqrt{3}} = \frac{3\sqrt{9} - 7\sqrt{3}}{3} = \frac{9 - 7\sqrt{3}}{3}$

12.) $\frac{\sqrt{18}}{\sqrt{9}}$

$$\frac{\sqrt{9} \cdot \sqrt{2}}{\sqrt{9}} = \sqrt{2}$$

13.) $\frac{\sqrt{49}}{\sqrt{84}} = \frac{\sqrt{49}}{\sqrt{4 \cdot 21}} = \frac{7}{2\sqrt{21}}$

$$\frac{7 \cdot \sqrt{21}}{2\sqrt{21} \cdot \sqrt{21}} = \frac{7\sqrt{21}}{42} = \frac{\sqrt{21}}{6}$$

14.) $8\sqrt{2} - 4\sqrt{2}$

$$4\sqrt{2}$$

$$15.) 16\sqrt{8} + 3\sqrt{4}$$

$$16 \cdot \sqrt{4} \sqrt{2} + 3 \cdot 2$$

$$16 \cdot 2\sqrt{2} + 6$$

$$32\sqrt{2} + 6$$

$$16.) 3\sqrt{7} - \sqrt{28}$$

$$3\sqrt{7} - \sqrt{4} \cdot \sqrt{7}$$

$$3\sqrt{7} - 2\sqrt{7}$$

$$\sqrt{7}$$

$$17.) (\sqrt{11} + 5)(\sqrt{11} - \sqrt{2})$$

$$\sqrt{121} - \sqrt{22} + 5\sqrt{11} - 5\sqrt{2}$$

$$11 - \sqrt{22} + 5\sqrt{11} - 5\sqrt{2}$$

* ORDER OF TERMS IS NOT IMPORTANT.

Solve each radical equation. Check for extraneous solutions.

$$18.) (\sqrt{x-1})^2 = 8^2$$

CHECK

$$\sqrt{65-1} = 8$$

$$x-1 = 64$$

$$+1 \quad +1$$

$$x = 65$$

$$19.) (\sqrt{2x+4})^2 = (\sqrt{3x-3})^2$$

$$2x+4 = 3x-3$$

$$-2x \quad -2x$$

$$4 = x-3$$

$$+3 \quad +3$$

$$7 = x$$

CHECK

$$20.) \frac{4\sqrt{x+5}}{4} = \frac{x}{4}$$

$$(\sqrt{x+5})^2 = \left(\frac{x}{4}\right)^2$$

$$16(x+5) = \frac{x^2}{16} \cdot 16$$

$$16x + 80 = x^2 - 16x - 80$$

$$-16x - 80$$

$$x^2 - 16x - 80 = 0$$

$$(x-20)(x+4) = 0$$

$$x = 20 \quad x = -4$$

CHECK

$$\sqrt{-4+5} = \frac{-4}{4}$$

$$\sqrt{1} = -1$$

Find the domain and range of each function.

$$21.) f(x) = \sqrt{x+7}$$

$$x \geq -7$$

$$y \geq 0$$

$$22.) y = \sqrt{x} - 12$$

$$x \geq 0$$

$$y \geq -12$$

$$23.) f(x) = \sqrt{3x-12}$$

$$x \geq 4$$

$$y \geq 0$$

Graph each function.

